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HOW FAR HAVE WE COME?

Talk by Hazel K. Stiebeling
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at the National Nutrition Education Conference
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Your discussions at this conference have reflected a number of concerns about nutrition education programs. You have said that effective communication is a common and basic problem. You have talked about your continuing need for perspective--as you evaluate the applicability of present knowledge and concepts of nutrition to the needs of various population groups. You have shared experiences out of new opportunities to communicate with special groups.

How far have we come in nutrition education? We have come a long way. We have come a long way because research has broadened our knowledge about nutrition. This knowledge undergirds our task. We have come a long way because we have available a plentiful and varied supply of food. This is the material base for all nutrition. We have come a long way in understanding how to communicate--if we want positive responses from those we hope to teach. And we have come a long way in working together--in a mission of supreme importance to human well-being. To appreciate how far we have come requires turning back the pages of history. We shall see that the history of nutrition in this country is short, but one of accelerating activity.

How Far in Knowledge About Food and Nutrition?

Before the beginnings of chemistry and physiology some 200 years ago, food advice had to be based on general observations of the relation of food to well-being. Such observations when made by thoughtful and discerning persons were often very astute. But the <u>why</u> or the <u>how</u> was elusive.

By the latter part of the 19th century questions about the values of food were being explored in Europe, with chemistry as a major tool. First proximate composition and calorie values were being determined, and then work on details about mineral and amino acid composition. Energy expenditures of man in various situations also were being investigated. Many Americans began to go to Germany, France, and England for postgraduate study in these fields.

The honor of being called the "father of nutrition" in this country has been given to W. O. Atwater. He studied in Germany beginning in 1869, immediately after receiving his Doctor's degree from Yale, and then again in 1887. Meanwhile he was an inspiring teacher of agricultural and physiological chemistry at Wesleyan University in Middletown, Connecticut, and in 1875 also became the first director of the first State-supported agricultural experiment station in this country (Connecticut). In 1888 he was made the first director of the Federal Office of

Experiment Stations, and in this capacity he was in good position to urge that the need for research in human nutrition be brought to the attention of the Congress of the United States.

When in 1894 the Congress made the first appropriations of funds for research into human nutrition to the Department of Agriculture, Atwater was appointed agent-in-charge of the investigations. At once he initiated the policy of conducting the research not only at headquarters, but also in cooperation with universities, experiment stations, and other groups. Among his early collaborators was Henry Clapp Sherman, who reported results in 1902 on Experiments on the Metabolism of Nitrogen, Sulfur, and Phosphorus in the Human Organism. Another of Atwater's assistants was Isabel Bevier, who in 1900 became the distinguished head of Household Science at the University of Illinois.

In the late 19th and early 20th centuries medical men and public health workers were impressed by the relationships they observed between certain disorders and the diets of certain population groups. At the same time animal husbandry workers were demonstrating that some combinations of feeds were more successful than others in promoting growth and reproductive performance in livestock. But the why was unclear.

In 1907, in Maly's Yearbook of Progress of Animal Chemistry, McCollum came upon abstracts of 13 investigations made between 1870 and 1906 which reported that chemically-purified diets containing all the then-known nutritional elements did not support animal life for more than short periods. Something was lacking! McCollum pondered this and decided to try to find the missing nutrients. He proposed to work with diets that could be chemically identified and to feed the diets to small experimental animals whose whole life history could be observed over a period of two or three years. Despite administrative opposition he established a rat colony for nutrition research at the University of Wisconsin in 1908--an historical first.

McCollum's results were so successful that the principle of using rats, mice, birds, and other small organisms as living test-tubes spread everywhere, and revolutionized nutrition research. Work in many laboratories, using these biological methods in combination with chemistry brought the identification of many vitamins, knowledge of the specific action of various amino acids, the particular functions of many inorganic substance, including trace minerals, and the comparative effect over a lifetime and generations of diets that were varied in the proportion of the different food and nutrients they contained.

Thus it took new methods of study to move from the knowledge that diet was involved in rickets, scurvy, beriberi, and pellagra, or that some feed combinations were better than others, to the what and the how of "little things" in nutrition. Today the use of conventional chemical methods and biological testing, together with sophisticated new methods involving modern physics are providing ever more complete and quantitative knowledge of the nutritive values of food, the function of various nutrients, and the nutritional requirements of man.

Indeed we have come a long way in our knowledge about nutrition. But there is still much to learn about the relation of food to health and how to make best use of our food supply for nutritional well-being. Hard at work on these problems are researchers as are found in the National Institutes of Health, the Department of Agriculture, and in experiment stations, universities, and other research laboratories across the country and around the world.

How Far in Food Availability?

The marvelous year-round food supply of this country is an asset of incomparable value to nutrition education programs. We have enough of all kinds of wholesome food, fresh and processed, that if it could be distributed and used in accord with the nutritional needs of each person, everyone could have a diet that would meet the Food and Nutrition Board's dietary allowances. Helping to make this food supply possible has been the application of science and technology to its production, processing, and marketing. Both the quantities and the inherent qualities of food have been improved through selective breeding of plants and animals. Great attention has been given to the conservation of nutrients during processing, storage and transportation of foods. There has been discriminating addition of selected nutrients to certain staple foods, either to restore nutrients lost in processing or to provide increased amounts of certain nutrients in the interest of the health of the public.

Food in this country is relatively inexpensive. The share of the family budget used for food is probably lower here than in any other country. Today it is less than half of what it was when Atwater made his early dietary studies in the mid-1880's. But even in our present era of affluence some cannot afford to buy the food they need. Such persons are being helped by a number of our food programs. In 1965 more than 35 million people--school children, the elderly, the disabled, the unemployed--got better diets than they would otherwise have had because of school lunch, school milk, and direct food distribution programs. A million low-income consumers were able to increase their food-purchasing power by a third, because of the food stamp plan.

Over the years we have moved from home production of food for household use to a money economy where we select our food from a bewildering array on the shelves of a supermarket. In consequence some new educational emphases are needed--how within our economic means to select the foods that will meet our needs for good nutrition, and how to cooperate in the consumer protection that we ask governmental control and inspection to provide.

How Far in Education?

Inasmuch as the provision of food and the activities associated with feeding the family are a traditional function of the home, it is natural that food and nutrition has always formed a significant area within the field of home economics.

Catherine Beecher, who was professionally active between 1830 and 1875 and who is accorded first place among the founders of the home economics movement, wrote A Treatise on Domestic Economy, in 1841. This became the first textbook in the field to be recognized by a State board of education (Mass.). About a quarter of her extensive writings on home economics subjects dealt with food and nutrition. Of course, she did not have at hand the scientific knowledge that has since been developed, but her orderly thinking, and her perception of what should be taught in food and nutrition had much influence on later curricula in home economics.

An early problem in home economics and nutrition education was that of finding qualified leadership. Some of the pioneers, e.g. Ellen H. Richards, were graduates of the women's colleges which were founded in the last quarter of the 19th century, who then went to M.I.T., Wesleyan University, and similar institutions for the study of food chemistry and related subjects. Somewhat later many students, both men and women, sought training at university centers in food chemistry, physiological chemistry, and nutrition--centers such as were developing under Osborne and Mendel at Yale, Sherman and Rose at Columbia, and McCollum at Wisconsin and Johns Hopkins. Graduates of these schools then took positions of leadership in colleges and universities throughout the country. They found many openings in the Land-grant institutions because nutrition was important in courses of agriculture and home economics which prepared for teaching--in schools and the extension service, and for business and industry jobs, as well as for farm and home vocations. Textbooks, libraries, and laboratories were important influences in the development of nutrition as a college subject. Sherman's Chemistry of Food and Nutrition which went through eight editions between 1911 and 1952, was standard for thousands of students. McCollum's The Newer Knowledge of Nutrition, first published in 1918, went through a number of editions and served a similar purpose. The first new building with a laboratory specially equipped for training nutrition personnel was that for Household Arts, opened in 1909 at Teachers' College, Columbia University. It was also at Teachers' College that the academic title of Professor of Nutrition was first given to Mary Swartz Rose in 1921, and that the first degree of Doctor of Education in Nutrition was awarded by any American university to Juanita Archibald in 1952.

Thus, good teachers in colleges, universities and medical schools; good text and reference books and technical journals; and well-equipped laboratories were basic in preparing the innumerable nutritionists who have been qualified to serve in many capacities--in schools, adult education, clinics, welfare agencies, food industries, and in government.

To help the intelligent layman select and use food wisely, an early publication came from the pen of Atwater in 1901. It was entitled Principles of Nutrition and Nutritive Values of Food. This was the forerunner of many food and nutrition bulletins to come from Federal and State agencies to service the diverse educational and welfare programs offered to the public. Many valuable materials have also been prepared by teachers, the Red Cross, the food industries, and other groups. The private preparation of food and nutrition text and reference books especially for elementary and secondary schools has been a relatively late but an important continuing development.

This national nutrition conference is the third to be devoted specifically to problems of nutrition education. I am sure that each of you has gotten ideas for new points of attack on your particular problem areas. I was impressed, as I reread the proceedings of your earlier conferences, by the clarity with which you state continuing problems and the pertinent action you recommend. For example, at your 1957 conference, it was said:

"The job of nutrition education would appear to be a continuing one. Large proportions of the population . . . have food supplies that furnish less than the recommended amounts of several nutrients. The wide opportunity for choice that homemakers now have because of larger incomes and the great variety of food on the market provide an increasing opportunity for improving and extending consumer education." - Faith Clark.

"The number-one problem in nutrition education at all levels is that too little is established concerning effective methods of teaching for change in food habits, . . . on the part of . . . teachers (there is) . . not a lack of interest, but certainly a lack in both sound knowledge and effective methods." Willa Vaughn Tinsley.

And here are several significant recommendations for action you made at the previous conferences:

"Make nutrition education a part of the elementary teacher's preparation."

"Explore (with leaders in elementary and secondary education) ways of making nutrition education more effective, and incorporating it into the teacher education program."

"Define goals and concepts appropriate for nutrition education for different age levels and for groups with various backgrounds."

"Develop more effective means of using mass media in nutrition education."

"Develop a plan for coordination of all resources for nutrition education, involving groups in agriculture, education, health, food industries and others."

None of these ideas are entirely new. Work on some has been done intermittently for many years, but all of them are urgent today. The problem is that they are big jobs, requiring the cooperation of many groups and persons, and calling for a high degree of motivation for a long pull. It is likely that the same thing will be said of some of the fresh recommendations coming out of this 1967 conference.

Experience of the past seems to say that it has been our national crises--catastrophic floods or drought, economic depression, war or threat of war--that have been the great stimulators to the effective attack on problems of food and nutrition; the great mobilizers of competence to deal with urgent practical situations; the great motivators for cooperative effort.

I well remember the summer of 1930 when I was very new on the national scene. There was a great drought throughout the South. Pellagra was rampant. A severe economic depression was taking form. Action was needed. Local, State, and national committees were soon set up. These included personnel from research and extension in agriculture and home economics, public health officials, emergency Red Cross workers, and concerned citizens. These groups joined to

alleviate distress by distributing yeast and other food, and in helping people plan and carry out garden and food preservation programs. Out of the success of this cooperative effort there came both interest and action in translating nutritional knowledge into practical diet plans at various cost levels--plans which could serve many purposes--guiding food production and purchases by rural people and guiding relief and rehabilitation programs among the urban poor. And before the close of the decade, a single, simple nutrition guide was prepared and sponsored by all federal agencies with food and nutrition programs in or with states. That was fruitful cooperation!

The biggest united push ever given to the national effort to improve nutrition began in 1941. You all should reread the proceedings of the National Nutrition Conference for Defense! By 1941 many states and communities as well as Washington agencies had organized nutrition committees. These involved public health nutritionists, extension workers, and food and nutrition specialists, economists, and administrators from schools, colleges, welfare agencies, food industries, and many governmental groups. Public and private groups in science, technology, communications, and statesmanship were concerned, once the situation was explained. Goals were agreed upon and each group tried to see how it could serve and offer its best. In the war-time days and years that followed, business and industry, educators and those operating mass media, citizens groups and state and federal agencies--all worked together in helping to cope with problems involved in improving nutritional levels in this country.

During this conference, you have been saying, it seems to me that we here today, are being confronted by a real, if subtle, crisis. This crisis is the paradox of less-than-optimal nutritional levels in a land of plenty, in an age of affluence. It is the crisis of the wide gap between nutritional knowledge and food practices, between the promise of the better life that the nutritional sciences offer, and its fulfillment in the lives of our citizens. Do we believe enough in the importance of good nutrition for all people to do the necessary--often unglamorous--jobs to make it an actuality in our midst? Many groups have a part to play--and these parts must be coordinated--

: Sound and effective nutrition education requires continuous advance in the sciences to make the foundation of our teaching secure. This is the task of research.

: The interpretation of research results for use by educators requires special skill and is a responsibility to be shared by research workers and experienced leadership such as can be mobilized by the Academy of Science-National Research Council.

: Taking the story of nutrition to the many publics of our society in such a way as to effect action, is a special task also. And it is one for an elite group such as you represent at this conference--

you, who collectively know the features of our many publics, differentiated as they are by age, economic, social, and intellectual structures;

you, who are experienced in the effective use of many forms of communication--face-to-face dialog, TV, radio, posters, cartoons, the printed word of books, magazines, and newspapers;

you, who work in various agencies--your emphases may differ, but your goal is one.

The need for effective and continuing cooperation in all areas in the field of nutrition is great. The task of education is of paramount importance. No single group can do the job by itself. We must support each other, as we work together.

How can we do it? It is for you to decide. May the answer of what to do, and the will to act, grow out of this conference of 1967!

BASIC CONCEPTS FOR NUTRITION EDUCATION

developed by the

Interagency Committee on Nutrition Education

1. **Nutrition is the food you eat and how the body uses it.**
   - We eat food to live, to grow, to keep healthy and well, and to get energy for work and play.
2. **Food is made up of different nutrients needed for growth and health.**
   - All nutrients needed by the body are available through food.
   - Many kinds and combinations of food can lead to a well-balanced diet.
   - No food, by itself, has all the nutrients needed for full growth and health.
   - Each nutrient has specific uses in the body.
   - Most nutrients do their best work in the body when teamed with other nutrients.
3. **All persons, throughout life, have need for the same nutrients, but in varying amounts.**
   - The amounts of nutrients needed are influenced by age, sex, size, activity, and state of health.
   - Suggestions for the kinds and amounts of food needed are made by trained scientists.
4. **The way food is handled influences the amount of nutrients in food, its safety, appearance, and taste.**
   - Handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.

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